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| Current Position | Allen Institute for Artificial Intelligence <i>Research Scientist</i> | June 2016 - now |
| Education | Ph.D. in Computer Science Cornell University , Ithaca NY, USA Advisor: Prof. Carla P. Gomes Committee: Prof. Carla P. Gomes, Prof. Bart Selman, Prof. John E. Hopcroft Thesis: <i>Leveraging Human Insights into Problem Structure for Scientific Discovery</i> M.S. in Computer Engineering Ecole Polytechnique Montreal , Montreal QC, Canada Advisor: Prof. Gilles Pesant Thesis: <i>Applying Probabilistic Message-Passing Algorithms to Search Heuristics for Solving Constraint Satisfaction Problems</i> *Nominated for the best 2010 University Master's Thesis* B.Eng. in Software Engineering Ecole Polytechnique Montreal , Montreal QC, Canada *Degree with highest honors* C.P.G.E. in Mathematics and Physics Montaigne , Bordeaux, France | 2009 - 2016 2008 - 2009 2004 - 2008 2001 - 2004 |
| Research Interests | Commonsense Reasoning; Natural Language Understanding; Computational Sustainability; Combinatorial Optimization; Artificial Intelligence; Automated Reasoning; Big Data; Machine Learning; Bayesian Inference; Human Computation; Crowdsourcing | |
| Scholarships | Alexander Graham Bell Canada Graduate Scholarship Natural Sciences and Engineering Research Council of Canada (NSERC) Masters Research Scholarship Fonds québécois de la recherche sur la nature et les technologies (FQRNT) J.A. Desève Funds Scholarship Fonds J.A. Desève Scholarship for excellence in Master's program Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation (CIRRELT) Scholarship for excellence Rotary International, The Rotary Foundation | 2009 - 2010 2009 - 2010 2009 2008 - 2009 2004 |
| Teaching Experience | Teaching Assistant Cornell University, Department of Computer Science Head TA for the course <i>Introduction to Analysis of Algorithms</i> | Spring 2016 |

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| | Guest Lecturer Cornell University, Department of Computer Science Graduate course, <i>Topics in Computational Sustainability</i> | Spring 2013 |
| | Teaching Assistant Cornell University, Department of Computer Science Review sessions and office hours in <i>Artificial Intelligence</i> <i>*TA Award of Excellence*</i> | Fall 2010 |
| | Teaching Assistant University of HEC Montreal, Department of Quantitative Methods Lectures and tutorials in <i>Probability and Statistics</i> | Jan-Dec 2007 |
| | Teaching Assistant Ecole Polytechnique Montreal, Department of Computer Science Lectures and lab sessions in <i>Computer Architecture</i> Lab sessions in <i>Programming Language (C++)</i> | Jan-Dec 2007 |
| Research & Development Experience | Cornell University <i>Research Assistant to Prof. Carla P. Gomes</i> Research in Computational Sustainability | 2009 - 2016 <i>full-time</i> |
| | Ecole Polytechnique Montreal <i>Research Assistant to Prof. Gilles Pesant</i> Research on constraint-centered search heuristics for combinatorial problems | Jan-Apr 2008 <i>part-time</i> |
| | Caisse de dépôt et placement du Québec <i>Intern, Market-risk Department</i> Improvement of market data processes; automation of financial portfolio values computation | May-Aug 2007 <i>full-time</i> |
| | Univoc Services Inc. <i>Scientific Programmer, R&D Department</i> Numerical designs for a speech-recognition analyzer system based on Monte-Carlo simulations; integration of numerical functions within a graphical user interface | May-Dec 2006 <i>full-time</i> |
| Professional Service | PC member AAAI 2011/2017/2018/2019/2020 CPAIOR 2013 IJCAI 2013/2015 | |
| | Reviewer AAAI 2010/2011/2013-2015/2017-2020 Annals of Mathematics and Artificial Intelligence CP 2010/2011/2016 CPAIOR 2012-2014 EMNLP 2020 IJCAI 2013/2015/2020 INFORMS Journal of Computing ITCAI 2010 Journal of Combinatorial Designs Journal of Machine Learning Research NAACL/NeuralGen 2019 NAACL/SemEval 2019 SAT 2013 SIAM Journal on Discrete Mathematics (SIDMA) SoCS 2013/2014 | |

[2020]

- [1] **Le Bras**, R., Swayamdipta, S., Bhagavatula, C., Zellers, R., Peters, M. E., Sabharwal, A., and Choi, Y. (2020). Adversarial filters of dataset biases. *ICML*
- [2] Bhagavatula, C., **Le Bras**, R., Malaviya, C., Sakaguchi, K., Holtzman, A., Rashkin, H., Downey, D., Yih, S. W.-t., and Choi, Y. (2020). Abductive commonsense reasoning. *ICLR*
- [3] Jensen, N., Lyons, E., Chebelyon, E., **Le Bras**, R., and Gomes, C. (2020). Conspicuous monitoring and remote work. *Journal of Economic Behavior and Organization*

[2019]

- [4] Sakaguchi, K., **Le Bras**, R., Bhagavatula, C., and Choi, Y. (2019). Winogrande: An adversarial winograd schema challenge at scale. *AAAI*, ***Outstanding Paper Award***
- [5] Bisk, Y., Zellers, R., **Le Bras**, R., Gao, J., and Choi, Y. (2019). Piqa: Reasoning about physical commonsense in natural language. *AAAI*
- [6] Sap, M., Rashkin, H., Chen, D., **Le Bras**, R., and Choi, Y. (2019). Social iqa: Commonsense reasoning about social interactions. *EMNLP*
- [7] Huang, L., **Le Bras**, R., Bhagavatula, C., and Choi, Y. (2019). Cosmos qa: Machine reading comprehension with contextual commonsense reasoning. *EMNLP*
- [8] Hopkins, M., **Le Bras**, R., Petrescu-Prahova, C., Stanovsky, G., Hajishirzi, H., and Koncel-Kedziorski, R. (2019). Semeval-2019 task 10: Math question answering. In *SemEval@NAACL-HLT*

[2018]

- [9] Sap, M., **Le Bras**, R., Allaway, E., Bhagavatula, C., Lourie, N., Rashkin, H., Roof, B., Smith, N. A., and Choi, Y. (2018). Atomic: An atlas of machine commonsense for if-then reasoning. In *AAAI*

[2017]

- [10] Hopkins, M., Petrescu-Prahova, C., Levin, R., **Le Bras**, R., Herrasti, A., and Joshi, V. (2017). Beyond sentential semantic parsing: Tackling the math sat with a cascade of tree transducers. In *EMNLP*
- [11] Xue, Y., Bai, J., **Le Bras**, R., Rappazzo, B., Bernstein, R., Bjorck, J., Longpre, L., Suram, S. K., van Dover, R. B., Gregoire, J., et al. (2017). Phase-mapper: An AI platform to accelerate high throughput materials discovery. In *the 29th Conference on Innovative Applications of Artificial Intelligence, IAAI'17*, ***IAAI Innovative Application Award***
- [12] Diaz, M., **Le Bras**, R., and Gomes, C. P. (2017). In search of balance: The challenge of generating balanced latin rectangles. In *the Fourteenth International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming, CPAIOR'17*
- [13] Suram, S. K., Xue, Y., Bai, J., **Le Bras**, R., Rappazzo, B., Bernstein, R., Bjorck, J., Zhou, L., van Dover, R. B., Gomes, C. P., et al. (2016). Automated phase mapping with agilefd and its application to light absorber discovery in the V–Mn–Nb oxide system. *ACS Combinatorial Science*

[2016]

- [14] Xue, Y., Ermon, S., **Le Bras**, R., Gomes, C. P., and Selman, B. (2016). Variable elimination in the fourier domain. In *the 33rd International Conference on Machine*

[2015]

[15] Zou, T., **Le Bras**, R., Salles, M., Demers, A., and Gehrke, J. (2015). Cloudia: a deployment advisor for public clouds. *The VLDB Journal*, ***Special Issue on the Best Papers of VLDB 2013***

[16] Ermon, S., **Le Bras**, R., Suram, S. K., Gregoire, J. M., Gomes, C. P., Selman, B., and van Dover, R. B. (2015). Pattern decomposition with complex combinatorial constraints: Application to materials discovery. In *the 29th Conference on Artificial Intelligence*, AAAI'15

[2014]

[17] **Le Bras**, R., Xue, Y., Bernstein, R., Gomes, C. P., and Selman, B. (2014). A human computation framework for boosting combinatorial solvers. In *the 2nd AAAI Conference on Human Computation and Crowdsourcing*, HCOMP'14

[18] **Le Bras**, R., Gomes, C. P., and Selman, B. (2014). On the erdos discrepancy problem. In *the 20th International Conference on Principles and Practice of Constraint Programming*, CP'14

[19] **Le Bras**, R., Bernstein, R., Gregoire, J. M., Suram, S. K., Gomes, C. P., Selman, B., and van Dover, R. B. (2014). A computational challenge problem in materials discovery: Synthetic problem generator and real-world datasets. In *the 28th Conference on Artificial Intelligence*, AAAI'14

[2013]

[20] **Le Bras**, R., Bernstein, R., Gomes, C. P., and Selman, B. (2013). Crowdsourcing backdoor identification for combinatorial optimization. In *the 23rd International Joint Conference on Artificial Intelligence*, IJCAI'13

[21] **Le Bras**, R., Gomes, C. P., and Selman, B. (2013). Double-wheel graphs are graceful. In *the 23rd International Joint Conference on Artificial Intelligence*, IJCAI'13

[22] Zou, T., **Le Bras**, R., Salles, M. V., Demers, A., and Gehrke, J. (2013). Cloudia: a deployment advisor for public clouds. In *the 39th International Conference on Very Large Data Bases*, VLDB'13

[23] **Le Bras**, R., Dilkina, B., Xue, Y., Gomes, C. P., McKelvey, K. S., Montgomery, C., and Schwartz, M. K. (2013). Robust network design for multispecies conservation. In *the 16th Conference on Artificial Intelligence*, AAAI'13

[24] Dilkina, B., Gomes, C. P., Lai, K., **Le Bras**, R., McKelvey, K. S., Sabharwal, A., Schwartz, M. K., Suter, J., and Xue, Y. (2013). Large conservation landscape - synthetic and real-world datasets. In *the 16th Conference on Artificial Intelligence*, AAAI'13

[25] Finger, M., **Le Bras**, R., Gomes, C. P., and Selman, B. (2013). Solutions for hard and soft constraints using optimized probabilistic satisfiability. In *the 16th International Conference on Theory and Applications of Satisfiability Testing*, SAT'13

[2012]

[26] **Le Bras**, R., Gomes, C. P., and Selman, B. (2012). From streamlined combinatorial search to efficient constructive procedures. In *the 15th Conference on Artificial Intelligence*, AAAI'12

[27] **Le Bras**, R., Ermon, S., Damoulas, T., Bernstein, R., Gomes, C., Selman, B., and

van Dover, R. B. (2012). Materials discovery: New opportunities at the intersection of constraint reasoning and learning. In *International Conference on Computational Sustainability*, CompSust'12

[28] Ermon, S., **Le Bras**, R., Gomes, C. P., Selman, B., and van Dover, R. B. (2012). Smt-aided combinatorial materials discovery. In *the 15th International Conference on Theory and Applications of Satisfiability Testing*, SAT'12

[2011]

[29] **Le Bras**, R., Damoulas, T., Gregoire, J. M., Sabharwal, A., Gomes, C. P., and van Dover, R. B. (2011). Constraint reasoning and kernel clustering for pattern decomposition with scaling. In *the 17th International Conference on Principles and Practice of Constraint Programming*, CP'11

[2009]

[30] **Le Bras**, R., Zanarini, A., and Pesant, G. (2009). Efficient generic search heuristics within the embp framework. In *the 15th International Conference on Principles and Practice of Constraint Programming*, CP'09

Workshops

[2012]

[31] **Le Bras**, R., Bernstein, R., Gomes, C. P., Selman, B., and van Dover, R. B. (2012). Human computation for combinatorial materials discovery. In *the Human Computation for Science and Computational Sustainability NIPS Workshop*, HCSCS'12

[2010]

[32] **Le Bras**, R., Damoulas, T., Gregoire, J. M., Sabharwal, A., Gomes, C. P., and van Dover, R. B. (2010). Computational thinking for material discovery: Bridging constraint reasoning and learning. In *the 2nd International Workshop on Constraint Reasoning and Optimization for Computational Sustainability*, CROCS'10

Technical Reports

[2012]

[33] **Le Bras**, R., Perrault, A., and Gomes, C. (2012). Polynomial time construction for spatially balanced latin squares. Technical report, <http://hdl.handle.net/1813/28697>, "eCommons Cornell University"

References

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